[redacted]

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 077 063**
B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication of patent specification: 16.01.88

(51) Int. Cl.⁴: A 61 K 45/02 // (A61K45/02, 31:365)

(21) Application number: 82108231.1

(22) Date of filing: 11.10.82

(54) Interferon-containing compositions and the use of these compositions in the treatment of herpetic infections, pre-malignant skin lesions, skin malignancies and psoriasis.

(30) Priority: 13.10.81 US 311035
14.06.82 US 388280

(43) Date of publication of application:
20.04.83 Bulletin 83/16

(45) Publication of the grant of the patent:
16.01.88 Bulletin 88/11

(84) Designated Contracting States:
BE CH DE FR GB IT LI NL SE

(56) References cited:
FR-A-2 265 740
FR-A-2 265 741
US-A-4 080 443
US-A-4 083 888
US-A-4 091 528
US-A-4 139 630
US-A-4 147 602
US-A-4 164 617

The file contains technical information submitted after the application was filed and not included in this specification

(73) Proprietor: Exovir, Inc.
10 Cutter Mill Road
Great Neck New York 11021 (US)

(72) Inventor: Ascuitl, Samuel S.
2077 Central Dr. N.
East Meadow New York 11554 (US)
Inventor: Rapp, Fred
3 Laurel Ridge Road
Hershey Pennsylvania 17033 (US)
Inventor: Miller, Daniel G.
6 Fox Meadow Road
Scarsdale New York 10583 (US)

(74) Representative: Vossius & Partner
Siebertstraße 4 P.O. Box 86 07 67
D-8000 München 86 (DE)

(56) References cited:
CHEMICAL ABSTRACTS, vol.89, no.11, September 11, 1978, page 2885, abstract no.42703p, Columbus, Ohio (US) T. C. MERIGAN et al.: "Interferon-stimulating and in vivo antiviral effects of various synthetic antiotic polymers"

EP 0 077 063 B1

Courier Press, Leamington Spa, England.

removed, but the tumor margins of the specimen showed tumor cells. The treatment would be carried out as a form of prophylactic therapy, with monitoring for recurrences.

Although ten (10) day courses of daily application with an occlusive dressing are preferable in the treatment of malignant and pre-malignant skin lesions, modifications can be readily made as necessary in treatment of specific cases.

In treatment of herpes zoster

topical application, preferably with an occlusive dressing, would be made of a pharmaceutical composition containing interferon and an antiviral nonionic surfactant, as described above. Application would be made two to three times daily until there was evidence of healing. By using the pharmaceutical composition of the present invention, pain associated with herpes zoster is alleviated because of local healing. Additionally, use of the pharmaceutical composition of the present invention in treatment of herpes zoster has been found to prevent postherpetic neuralgia.

The lesions associated with herpes zoster have been determined to heal faster than if left untreated.

In the treatment of psoriasis

repeated courses of topical application of interferon and an antiviral nonionic surfactant in a physiologically acceptable carrier according to the present invention would be required. Psoriasis is a chronic, recurring condition, for which there is no known cure. Since large areas of the skin are often involved, a plastic occlusive dressing would preferably be used to insure absorption into the skin of the pharmaceutical composition containing human interferon and an antiviral nonionic surfactant. Additionally, since large areas may be involved and hence require treatment, a significant amount of the human interferon would be absorbed into the bloodstream. Such may have a favorable effect on the systemic aspects of psoriasis, i.e., psoriatic arthritis.

Topical administration

may be effected by applying a small amount, e.g., about 1 ml) of the compositions containing human interferon and an antiviral nonionic surfactant directly to and in areas adjacent to the site of lesions with a cotton swab, soft brush or sponge. The quantity applied would be dependent on the size of the lesions being treated. Any quantity sufficient to cover the area of the lesions is effective.

In addition to direct application, the pharmaceutical compositions containing human interferon and an antiviral nonionic surfactant may be administered topically by various other methods. For example, the compositions may be delivered to the affected skin region in microencapsulated form. The pharmaceutical compositions may also be delivered in a foam or by spray.

As indicated hereinabove, the pharmaceutical compositions of this invention are also useful as a prophylactic for and in the treatment of *in situ* cervical carcinoma. In this application the interferon-containing compositions would be applied directly to the cervical or genital area.

Claims

1. A pharmaceutical composition for treating herpes simplex viral infections, microbial skin infections, malignant skin lesions, pre-malignant skin lesions and/or skin lesions associated with herpes zoster or psoriasis in humans, consisting of 10^5 to 10^8 I.U. per dosage unit of a human interferon, an effective amount of an antiviral nonionic surface active agent, and a physiologically acceptable carrier for topical application.

2. The composition of Claim 1 wherein the amount of antiviral surface active agent is 0.1 to 20%, preferably 1% to 5%.

3. The composition of Claim 1 wherein the nonionic surface active agent has at least one ether or amide linkage.

4. The composition of Claim 3 wherein the nonionic surface active agent is nonylphenoxy-polyethoxy ethanol, p-diisobutylphenoxy-polyethoxy ethanol, polyoxyethylene (10) oleyl ether, or Onyx-ol® 345.

5. The composition of Claim 4 wherein the human interferon is leukocyte interferon.

6. The composition of Claim 5 wherein the amount of human interferon is 10^6 to 10^8 I.U.

7. The composition of Claim 1 wherein said carrier is a pharmaceutically acceptable carrier and/or a cosmetically acceptable carrier.

8. The composition of Claim 1 wherein the carrier includes water, ethanol, polyethylene glycol, mineral oil, petrolatum, or propylene glycol.

Patentansprüche

1. Arzneimittel zur topischen Behandlung von Herpes simplex Virusinfektionen, mikrobiellen Hautinfektionen, malignen Hautläsionen, präkanzerösen Hautläsionen, und/oder mit Herpes zoster oder Psoriasis einhergehenden Hautläsionen beim Menschen, das von 10^5 bis 10^8 I.E. pro Dosiseinheit menschlichem Interferon, einer wirksamen Menge eines antiviralen, nichtionischen oberflächenaktiven Mittels und einen physiologisch verträglichen Trägerstoff besteht.